

TITLE: ENDOVASCULAR CRYOTREATMENT CATHETER  
ABSTRACT OF THE DISCLOSURE

1 An elongated catheter device with a distal balloon assembly is adapted for  
endovascular insertion. Coolant injected through the device may, in different  
embodiments, directly cool tissue contacting the balloon, or may cool a separate  
internal chamber. In the first case, the coolant also inflates the balloon, and spent  
coolant is returned to the handle via a return passage extending through the body  
6 of the catheter. Plural balloons may be provided, wherein a secondary outer  
balloon surrounds a primary inner balloon, the primary balloon being filled with  
coolant and acting as the cooling chamber, the secondary balloon being coupled to  
a vacuum return lumen to serve as a robust leak containment device and thermal  
insulator around the cooling chamber. Various configurations, such as surface  
modification of the balloon interface, or placement of particles, coatings, or  
expandable meshes or coils in the balloon interface, may be employed to achieve  
this function.

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